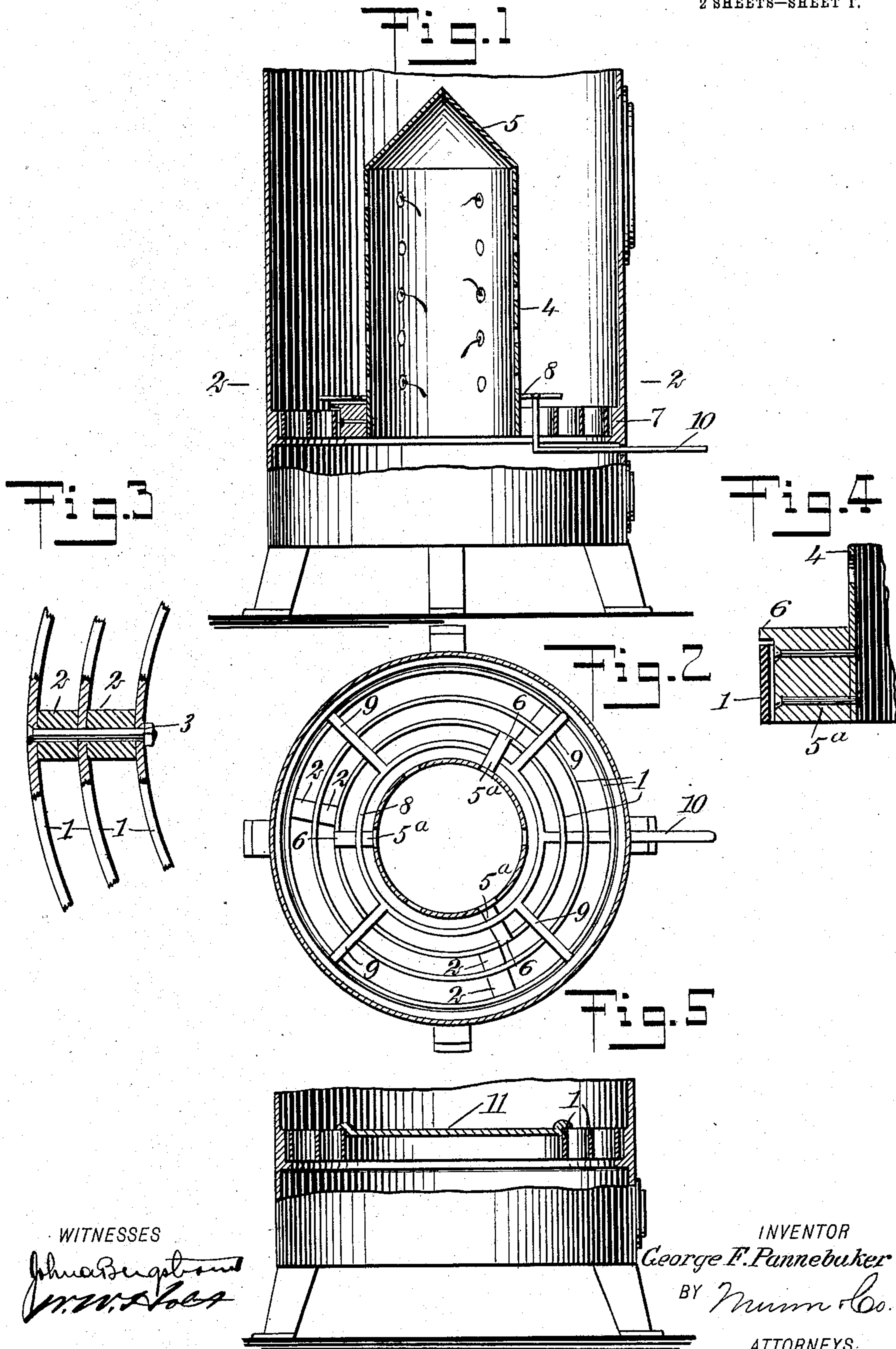


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 APPLICATION FILED MAY 20, 1907.

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2 SHEETS—SHEET 1.



WITNESSES  
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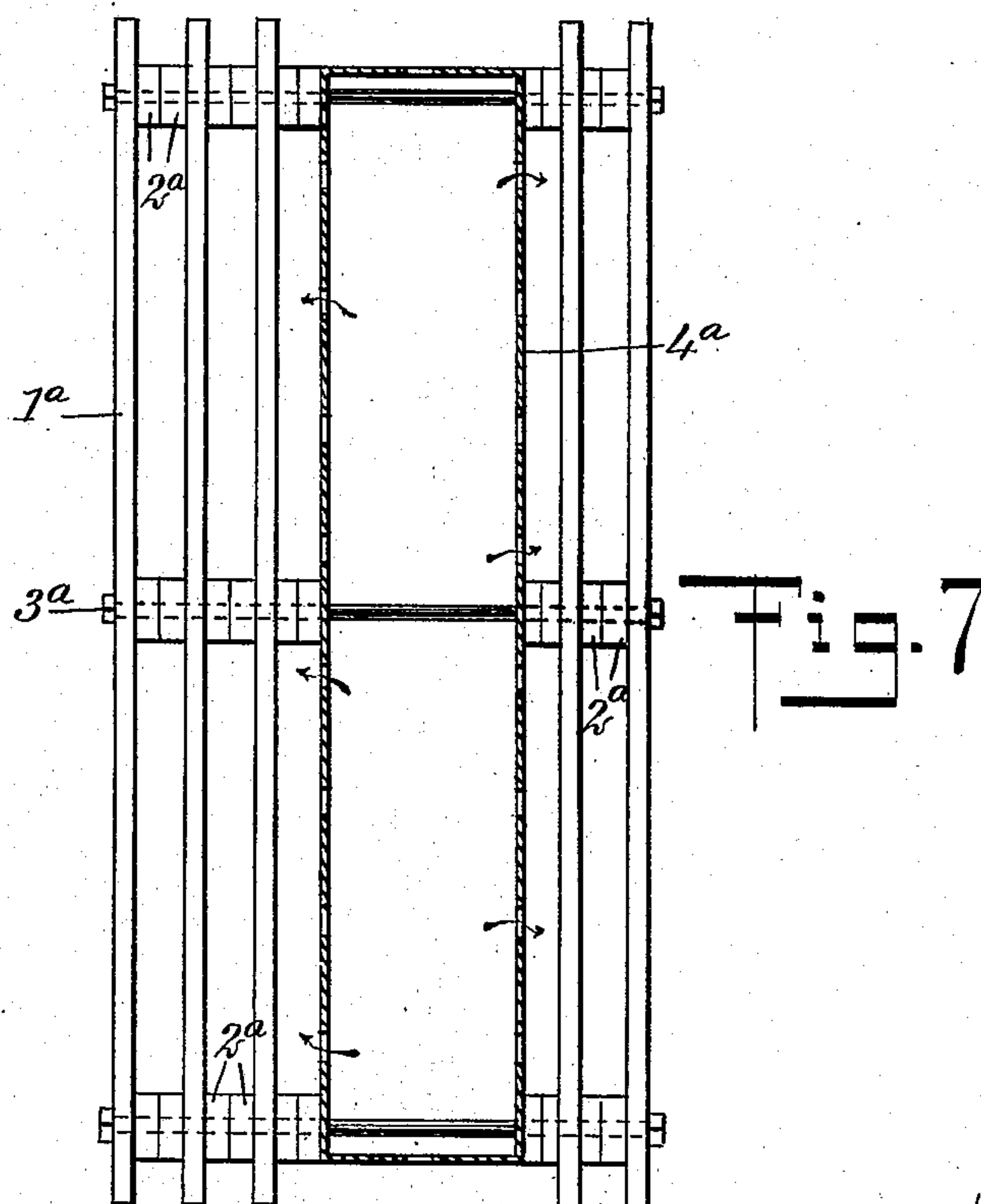
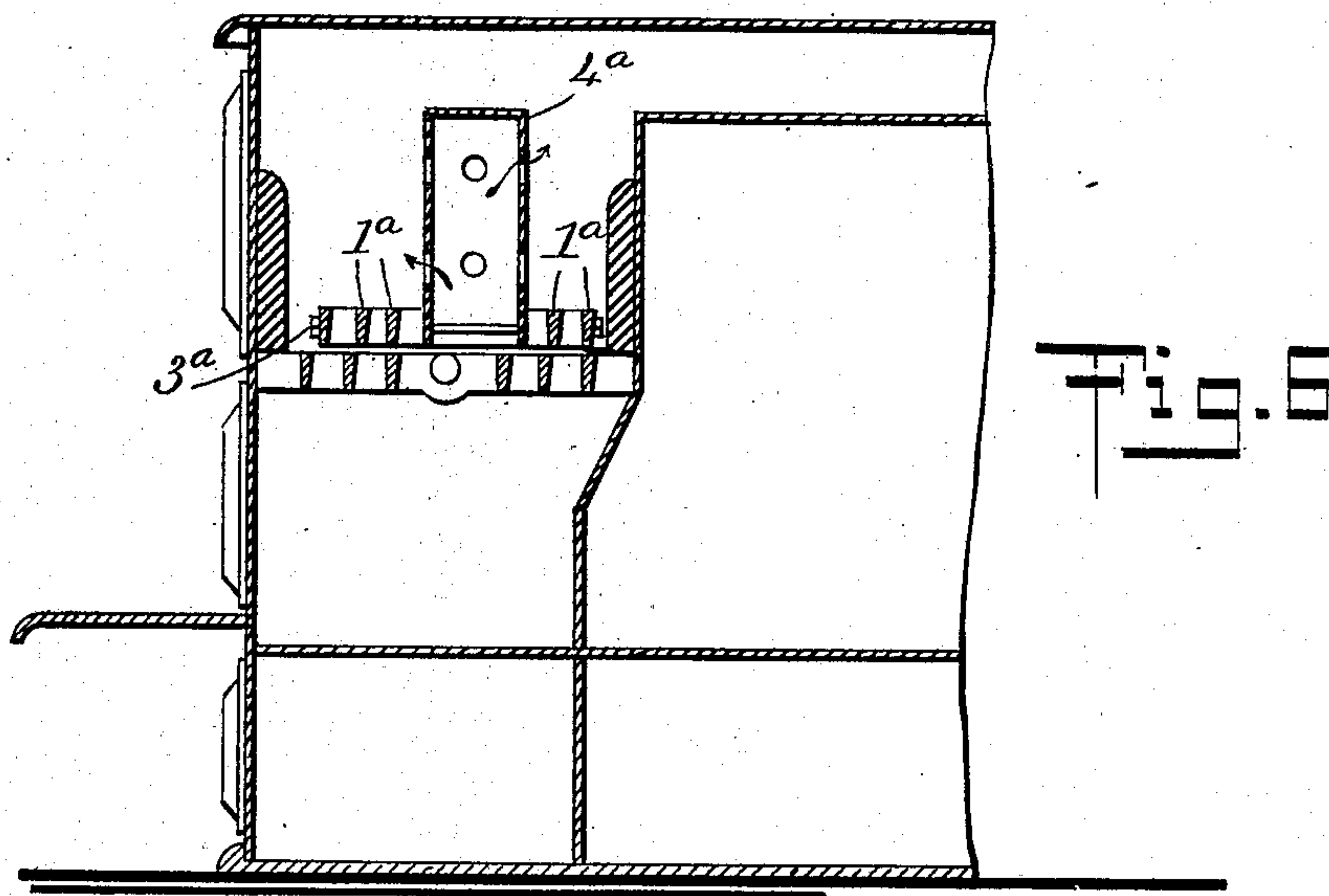
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WITNESSES

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# UNITED STATES PATENT OFFICE.

GEORGE FRANK PANNEBAKER, OF ST. LOUIS, MICHIGAN, ASSIGNOR OF ONE-HALF TO LEWIS A. DRURY, OF ST. LOUIS, MICHIGAN.

## DEVICE FOR CREATING A CENTRAL DRAFT FOR FIRE-BOXES.

No. 900,772.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed May 20, 1907. Serial No. 374,572.

*To all whom it may concern:*

Be it known that I, GEORGE FRANK PANNEBAKER, a citizen of the United States, and a resident of St. Louis, in the county of Gratiot and State of Michigan, have invented a new and Improved Device for Creating a Central Draft for Fire-Boxes, of which the following is a full, clear, and exact description.

The purpose of this invention is the provision of an attachment for the fire-boxes of stoves, furnaces, grates, etc. which will operate to create a draft within the body of the fuel, whereby the latter will be completely consumed and the heat will be thrown from the center of the stove outwardly to the sides.

By my invention I have found it possible to burn the fuel economically with an absence of cinders and clinkers in the resulting ashes.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a central, vertical section through a heater with one form of my improvement applied thereto; Fig. 2 is a cross section of the same substantially on the line 2—2 of Fig. 1; Fig. 3 is a fragmentary view of the grate-bars partly in section, in that form of my invention shown in Figs. 1 and 2; Fig. 4 is a sectional view on an enlarged scale, of a portion of the construction shown in Fig. 1; Fig. 5 is a view similar to Fig. 1 with the perforated body displaced and a plate substituted therefor as when it is intended to burn wood; Fig. 6 is a sectional view through a cooking range with a modified form of my invention seated within the fire-box, and Fig. 7 is a longitudinal, horizontal section of that form of my invention shown in Fig. 6.

Referring more especially to Figs. 1 to 5 inclusive wherein is represented the preferred form of my invention as applied to heaters, burners, etc., the same comprises a series of thin concentric grate-bars 1 which are spaced a considerable distance apart as by spacing blocks 2 and secured together by bolts or other equivalent devices 3 providing a central opening in which is seated a hollow, cylindrical, perforated body 4 having a con-

ical cap 5 fixed to its upper end. For supporting the body 4 from the inner grate-bar 1, the former has exteriorly fixed near its bottom, blocks 5<sup>a</sup> constructed with projecting flanges 6 which, when the body 4 is seated in place, rest upon the top edge of the inner grate-bar 1. The extent to which the blocks 5<sup>a</sup> project from the body 4 is sufficient to snugly fit within the internal diameter of the inner grate-bar and prevent any considerable lateral play of the body when in place.

When the attachment is placed within a stove, the outer grate-bar 1 rests upon the usual flange or other projection 7 provided above the ash-pit. When the grate-bars 1 are thus placed, a shaker 8 is preferably provided in connection therewith, the same consisting of a ring of sufficient diameter to freely pass about the body 4, with arms 9 extending therefrom and resting directly on top of the bars 1. The shaker is provided with a suitable handle 10, which is connected to the ring portion thereof and passes under the grate-bars out through an opening in the side of the stove.

In practice, the perforated body 4 is preferably of such height as to carry it above the line of fuel, leaving one or more rows of perforations in the body above the fuel when the fire-box is filled, these perforations admitting of the escape of the rising gases and driving the heat from the surface of the fire outwardly to the sides of the stove. The perforations of the cylinder 4 which are covered by the body of the fuel, supply the interior of the fire with sufficient oxygen to completely reduce the coal and also operate to drive the heat radially outward. If wood is to be used in the fire-box instead of coal, the cylinder 4 and attached parts are removed and the opening inclosed by the inner grate-bar 1 covered by a plate 11 shown in Fig. 5.

In Figs. 6 and 7 I show a modified form of my invention which is more especially adapted to be used in connection with a cooking range, this form of the invention consisting of parallel grate-bars 1<sup>a</sup> held in spaced relation by spacing blocks 2<sup>a</sup> and connected together by bolts 3<sup>a</sup>. The bars 1<sup>a</sup> are displaced near the center of the grate, providing an enlarged opening over which is seated a perforated box or body 4<sup>a</sup> corresponding to the cylinder



4 in that form of my invention just described, and performing the same function. In the use of this type of my invention, the grate-bars 1<sup>a</sup> are seated directly on the grate 5 of the range, with the perforated box 4<sup>a</sup> preferably located slightly closer to the back of the fire-box, whereby a greater coal space is provided at the front of the stove. It is then necessary for the flame from the fire to 10 roll back over the top of the box, operating to hold the heat to the top of the stove and giving better results. The manner of assembling the grate-bars 1<sup>a</sup> admits of one or more of these bars being added or displaced to suit 15 the required area of the fire-box.

By constructing the grate of thin bars and spacing them a considerable distance apart, as shown, the ashes drop through the grate about as fast as they are formed, thus per- 20 mitting a free circulation of air therethrough into the burning fuel, and thereby prolonging the life of the grate and preventing in a measure the formation of clinkers.

The invention as described, is obviously 25 susceptible of other modifications than those shown, and I consider that I am entitled to such changes as fall within the scope of the claims annexed.

Having thus described my invention I

claim as new and desire to secure by Letters 30 Patent:

1. In a fire box, the combination with a grate formed of concentric and spaced grate bars and having a central opening, of a hol- 35 low cylindrical perforated body open at its bottom and having a conical top, said body being of less diameter than the opening of the grate and provided at its lower end on its outer face with blocks having flanges rest- 40 ing upon the top of the inner grate bars, the body being of a height to extend above the line of fuel.

2. In a fire box, the combination with a grate having an opening therein, of a hollow 45 perforated body open at the bottom and closed at the top, said body being of less diameter than the opening of the grate and provided at its lower end on its outer face with blocks having flanges resting upon the 50 inner grate bars, the body being of a height to extend above the line of fuel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE FRANK PANNEBAKER.

Witnesses:

C. W. GIDDINGS,  
W. A. RUSSELL.